



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,525	05/20/2004	Jean-Christophe Ehrstrom	22130-00039-US	5569
30678	7590	07/12/2006	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ LLP SUITE 800 1990 M STREET NW WASHINGTON, DC 20036-3425			ABOAGYE, MICHAEL	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/849,525	EHRSTROM ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Michael Aboagye	1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 June 2006.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 15-18 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) 1-18 are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 20 May 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 09/20/2004.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-14) in the reply filed on June 22, 2006 is acknowledged. The traversal is made on the ground(s) that the search group 1 claims 1-14 will uncover the limitations claims 15-18 of Group II. This is not found persuasive because the process of the elected Group I, while related to Group II as process and product made, have acquired a separate status in the art as already indicated by their different classification. The search for the product of Group II would cause an undue burden in searching for an aeronautical construction part comprising at least two elements made from aluminum alloy, since the product can be made by another materially different process such as friction and TIG welding.

The requirement is still deemed proper and therefore made final.

### ***Drawings***

2. The application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the acronym AED, it is unclear what said acronym means and therefore renders the claim indefinite.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-14 insofar as definite (in view of the 35 U.S.C. 112, second paragraph rejections) are rejected under 35 U.S.C. 103(a) as being unpatentable over either

Litwinski (US Patent No. 6,780,525) or Waldron et al. (US Patent No. 6,168,067) in view of Benedictus et al. (WO 2004/001086, see US Equivalent US Patent No. 6,994,760).

Litwinski or Waldron et al. individually teach a method for manufacturing aluminum alloy parts with precipitation hardening comprising: subjecting at least two elements made from the same alloy or different alloys to heat treatment at a predetermined temperature schedule, positioning the first elements adjacent the second element thereby defining an interface therebetween, friction stir welding said at least two elements to form a welded part; conducting a solution heat treatment, and quenching welded part, wherein the treatment duration is at least 48 h; wherein the heat treatment is done at a homogenization stage before rolling, extrusion, or forging; wherein the heat treatment is reheating between two hot rolling, extrusion, or forging passes; wherein the heat treatment is conducted on a partly finished rolled or forged product before welding; wherein the heat treatment is followed by quenching and having refined structure of grain size less than about 200 $\mu$ , wherein said aluminum alloy have a copper content of at least about 0.5% (see Waldron et al. abstract, figures 1-5; column 1, line 10 – column 2, line 46 and column 3, lines 16 –column 6, line 67); and ( see, Litwinski, abstract, figures 2, 3, 4, 5, 7 and 8; column 2, line 1-column 4, line 43 and column 5, line 35 – column 9, line 31)

Regarding claim 14, Waldron et al. teaches flushing of inert gas over the surface of a welding zone, during welding, or conducting the welding in a process in a reducing atmosphere in order to avoid oxide formation( see column 2, lines 23-33).

Litwinski and Waldron et al, individually teach substantially the limitations as set forth in claim 1 and 12, but do not expressly discuss specific melting peak energy in

relation to the heat treatment temperature, nor, the limitations comprising: wherein the specific melting peak energy is less than 0.5 J/g; wherein the specific melting peak energy is less than 0.1 J/g; wherein the temperature T is less than the alloy burning temperature by not more than 20°C; wherein the burning temperature of the alloy is less than 500 °C, and the treatment duration is at least 24 h and also do not specify that aluminum alloy comprises a copper-containing alloy of the 7xxx series having a chromium content by weight of less than about 0.15%, and a zirconium content by weight of less than about 0.09%.

However, Benedictus et al. teaches a heat treatment schedules of an alloy of aluminum before and following welding processes such as friction stir, laser or TIG welding (see, column 7, lines 31-42) to produce a structural component comprising at least two parts. Said heat treatment comprising conducting a solution heat treatment, and quenching welded parts. The disclosure also addresses the concept of minimum treatment duration at temperature T leading to specific melting peak energy. Benedictus et al. teaches an specific peak energy value less than 1.5 J/g (which satisfies the scope of the limitations set forth in claim 1, 2 and 3); wherein T is less than the alloy burning temperature, wherein the burning temperature of the alloy is less than 500 °C, and a treatment duration is at least 24 h; a copper-containing aluminum alloy of the 7xxx series which have a chromium content by weight of less than about 0.15%, and a zirconium content by weight of less than about 0.09%. Said heat treatment schedule designed to improve high tolerant series aluminum alloys with balanced properties with regards to fatigue crack growth resistance, corrosion resistance and improve strength

and toughness (see, Benedictus et al., abstract, figures 1-4, page 1, line 1 through page 15, line 24 including tables).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to have modified the heat treatment / friction stir welding method of either Litwinski or Waldron et al. with the heat treatment schedule as taught by Benedictus et al. in order to improve high tolerant series aluminum alloys with balanced properties with regard to fatigue crack growth resistance, corrosion resistance and improve strength and toughness (see, Benedictus et al.; abstract, page 4, line 22 – page 6, line 31).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sainfort et al. (US 5,560,789), Lasalle et al. (US 5,178,695), Adachi et al. (US 6,768,067) and Petter et al. (US 6,802,444) are also cited in PTO-892.
  
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM  
AM

  
Michael Aboagye  
Assistant Examiner  
Art unit 1725

07/06/2006

**KEVIN KERNS**  
PRIMARY EXAMINER  Kevin Kerns 7/6/06